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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,634	02/18/2004	Cheng-ta Wu	07942.0013-01	9096

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EXAMINER

STRICKLAND, JONAS N

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 05/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/779,634

Applicant(s)

WU ET AL.

Examiner

Jonas N. Strickland

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/886,010.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 16-19 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holst et al. (US Patent 5,955,037).

Applicant discloses a method for processing residual gas, comprising: providing a chamber; introducing residual gas into the chamber, the residual gas having a first toxic level; introducing an inert gas; diluting the residual gas; introducing a reactive gas into the chamber to cause a reaction between the diluted residual gas and the reactive gas to produce a mixed gas; outputting the mixed gas from the chamber, the mixed gas having a toxic level lower than the first toxic level; and providing a powder-collection apparatus to allow continuous removal of powder produced by the reaction of the residual gas, the inert gas and the reactive gas in the chamber.

Holst et al. discloses an apparatus and process to treat gaseous effluents such as waste gases from semiconductor manufacturing operations comprising a waste gas inlet mechanism, a first gas inlet mechanism for an inert gas such as nitrogen, and a second inlet mechanism for a reactive gas such as dry air, a plurality of baffles and a gas outlet mechanism (see abstract; col. 10, lines 35-41; col. 12, lines 40-45; and col. 13, lines 4-12 and 65-67). Holst et al. also discloses connecting a wet scrubber to the apparatus wherein the gas outlet connects to the wet scrubber (col. 13, lines 65-67 and col. 14, lines 1-5). Holst et al. also discloses the capture of fine particulates (powder) with the use of an eductor (col. 15, lines 6-8). Holst et al. teaches wherein the eductor is coupled with a suitable filtration module, to permit filtration of the eductor discharge.

It would have been obvious to one of ordinary skill in the art to expect the process and apparatus as taught by Holst et al. to have been capable of the continuous removal of powder produced by the reaction of residual gas, inert gas and reactive gas, because Holst et al. clearly discloses a method for treating waste gases wherein the

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waste gas is treated with an inert gas and a reactive gas, and wherein the capture of fine particulate matter may be captured from the treatment system.

With respect to claim 18, it would have been obvious wherein the powder-collection apparatus is coupled to the chamber via a first and second gate, because it is well known in the art to have controllable valves in the inlets and outlets of different reactors. With respect to claims 19 and 23, Holst et al. teaches a plurality of baffles, which would make it obvious to increase the path of the diluted residual gas and reactive gas, since Holst et al. discloses high gas velocities and long residence times (col. 13, lines 4-11).

5. Claims 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holst et al. (US Patent 5,955,037) as applied to claims 16-19 and 21-23 above, and further in view of Seeger et al. (US Patent 5,521,263).

Applicant claims with respect to claims 20 and 24, a step of cooling the chamber with a water-cooling pipe.

Holst et al. discloses an apparatus and process to treat gaseous effluents such as waste gases from semiconductor manufacturing operations comprising a waste gas inlet mechanism, a first gas inlet mechanism for an inert gas such as nitrogen, and a second inlet mechanism for a reactive gas such as dry air, a plurality of baffles and a gas outlet mechanism. Holst et al. also discloses having a heat exchanger equipped to the chamber (col. 11, lines 60-67 and col. 12, lines 1-37). However, Holst et al. does not disclose a water-cooling pipe.

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Seeger et al. teaches wherein it is known in the art to have a reactor with a heat exchanger jacket that may comprise an electric heater or a water heat exchanger for the heating or the cooling of the reaction medium by circulating hot or cold water through the reactor jacket (col. 7, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art to have a water-cooled pipe as the heat exchanger in Holst et al., since Holst et al. discloses having a heat exchanger on the reactor and teaches wherein any suitable heat exchanger, such as an electric heater may be used and Seeger et al. teaches that to cool or heat a reactor an electric heater or a water heat exchanger may be used in the alternative.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP 4,801,437; USP 5,009,869; USP 5,533,890; USP 5,649,985; USP 5,759,498.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N. Strickland whose telephone number is 571-272-1359. The examiner can normally be reached on M-TH, 7:30-5:00, off 1st Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonas N. Strickland  
May 18, 2005



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